

**IN THE SPECIFICATION**

Please replace paragraph numbered [0005] with the following paragraph:

[0005] In accordance with the present invention, a single tank of a bioreactor system is internally partitioned into a volumetrically large chamber within which biological treatment of a ~~fluent biomass such as~~ wastewater contaminated by solids suspended therein, is continuously performed, and a volumetrically small chamber within which membrane filtration is performed after the treated wastewater collected within the small chamber undergoes separation between portions thereof by a dewatering device, located outside of the tank. Separation of such portions of the wastewater respectively increases and lowers contamination so that the portion with lowered contamination may undergo the filtration into a cleansed effluent to be withdrawn. Such system involves maximized removal of suspended solids during processing of the wastewater contaminated under different conditions. Selectively controlled valve means is associated with the system in order to interrupt performance of the membrane filtration within the small chamber of the tank, while the separated portion with increased contamination is continuously recycled into the large chamber for biological retreatment. Also, some of the separated portion of the wastewater with the lowered contamination is disposed of by direct discharge through the dewatering device in by-pass relation to the tank, when the contamination condition does not require membrane filtration.

Please replace paragraph numbered [0009] with the following paragraph:

[0009] Referring now to the drawing in detail, apparatus of a bioreactor system 10 is illustrated in FIG. 1, involving use of a single collection tank 12 into which a contaminated fluent biomass, such as raw feed streams of non-oily wastewater, is fed through an inlet 14 under pressure of a pump 16 from sources 17, such as showers, sinks, toilets and urinals on-board a sea vessel ~~for example~~, within which the system 10 may be installed. Such wastewater feed streams enter a top 13 of the tank 12 through the inlet 14 for collection therein on opposite sides of a weir plate 18 internally partitioning the tank 12 into a volumetrically smaller chamber enclosing an assembly 20 of membranes immersed within wastewater having its contamination lowered and a larger volume chamber within which aeration by an aerator 19 promotes biological treatment. The wastewater with a lowered concentration of contamination solids inside the smaller chamber is filtered by permeation through the membranes of the assembly 20, under suction applied by a pump 22, to withdraw a permeate as a cleansed effluent, having substantially little or no contaminating solids therein. Biologically treated wastewater is recycled under pressure of a pump 28 from a bottom 27 of the larger chamber into the smaller chamber through a dewatering device 24, from which a portion of the wastewater with the solids concentration lowered is separated from another portion with an increased solid concentration as a result of centrifugation. The pump 28 withdraws the biologically treated wastewater from the bottom 27 of the larger volume chamber of the tank 12 underlying the aerator 19, so as to recycle the biologically treated wastewater outside the tank 12 through the dewatering device 24 for delivery of the separated portion thereof with the lowered solids concentration through a valve 29 into the smaller volume chamber of the tank 12, within which it undergoes membrane permeation. The wastewater

portion having the increased solids concentration separated by the dewatering device 24 from the lowered solids concentrated wastewater portion, is continuously returned through a recycling conduit 26 from the dewatering device 24 into the larger volume chamber so as to elevate the suspended solids concentration therein, which undergoes biological retreatment. The wastewater undergoing such recycling, is maintained at a surface level within the larger chamber lower than that in the smaller volume chamber, as shown in FIG. 1. The wastewater within the smaller volume chamber accordingly overflows the weir plate 18 into the larger volume chamber as indicated by the curved arrow 21. By the membrane permeate filtration within the smaller tank chamber, the solids are finely separated therein, and withdrawn therefrom by the pump 22. The in-feed flow rate of wastewater into the tank 12 through the inlet 14 allows the aforementioned overflow 21 of the wastewater into the larger volume chamber, within which the wastewater surface is maintained at the lower level below the top of the weir plate 18, as shown in FIG. 1. By virtue of aeration within the larger volume chamber of the tank 12 by the aerator 19, aerobic bacterial growth is promoted during biological treatment so as to enhance the permeation through the membranes in the assembly 20 to more fully cleanse the wastewater being withdrawn by the pump 22 as an effluent.

Please replace paragraph numbered [0012] with the following paragraph:

**[0012]** While a sea vessel within which the bioreactor system 10 is installed is being propelled through seawater under the aforementioned conditions that do not require solids separation by the membrane assembly 20 in order to sufficiently cleanse the wastewater, the aforesaid interruption in filtration is achieved by closure of the valve 29 so as to operationally

Appln No. 10/758,559

Navy Case No. 96,046

Amendment in Reply to Final Office action dated Dec. 6, 2005

isolate the small membrane chamber, while a discharge valve 30 is opened ~~by means of a control~~  
~~31 as diagrammed in FIG. 1~~ for direct compact disposal of the separated waste sludge portion of  
the wastewater from the dewatering device 24 otherwise delivered to the small chamber.